

INSTALLATION INSTRUCTIONS



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303/449-9949



DESCRIPTION

The Energy Sentry measures the total power consumption in a dwelling and automatically controls the metered demand by temporarily switching sheddable loads off and on. The demand set point can be conveniently adjusted to suit the seasonal need for economy and comfort.

The Energy Sentry is designed for use with all types of electric heating and cooling equipment. The system is comprised of a control panel, logic/relay unit and a pair of current transformers.

LOAD CONTROL SEQUENCE

The Energy Sentry sheds the least critical load first when it senses that the average total power consumption is about to exceed the demand set point. As necessary, additional

loads are sequentially shed to prevent the metered demand from exceeding the set point. The last load to be shed will be restored first, whereas the first load to be shed will be restored last.

By continuously averaging the total power consumption over the metering period the controller sheds loads only when the average demand reaches the set point. This makes it possible to operate loads that are greater than the demand setting during a portion of the metering period.

When operating in the Heat Balancer mode, the controller rotates the first two relays shed every three minutes to avoid prolonged shed periods of loads of the "first off" relay. This feature is for baseboard heating. It can be selected by jumper option on the logic card.

NOTE: Model ESB Controller does not have a control panel or a cable

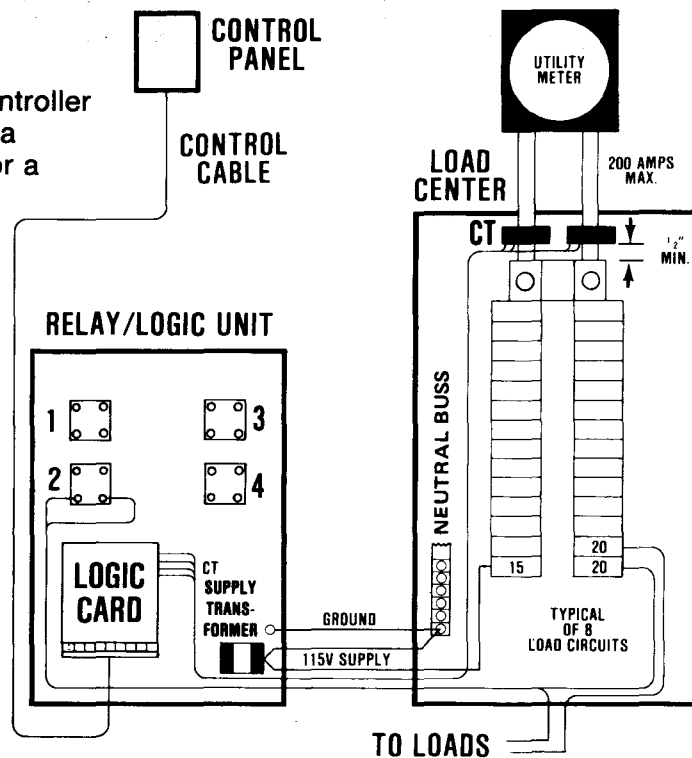


FIG. 1

NOTE: The installer is responsible for furnishing all interconnecting wiring and fittings. A U.L. listed two-gang J-box for mounting the control panel is required for ES models.

SUGGESTED MATERIAL LIST

Thermostat Cable, #18 AWG, 6 conductor
#10, #12, #14 Solid cu. wire. 600V U.L. Listed
15 ampere circuit breaker
1"-2" Off-set nipple with bushings and locknuts
Additional material as required by job

NOTE

The Energy Sentry is UL Listed and designed for installation in accordance with the NEC. Improper installation may result in voiding the warranty.

INSTALLATION PROCEDURE

1. Spot locations for the control panel (if red), relay/logic unit, current transformers and control cable(s). Make certain that there is ample space for proper installation.
2. Remove relay/logic base plate from the enclosure.
3. Make holes in the enclosure for wiring relays to the load center and for the control cable as shown in Figure 1.
4. Mount the enclosure on the wall adjacent to the load center using the offset nipple to join the two boxes together.
5. Remove all metal filings from the enclosure.
6. Replace the relay/logic plate in the enclosure carefully.
7. Install a current transformer on each phase of the supply cable between the electric meter and the main breaker as shown in Figure 1.

WARNING: DISCONNECT THE MAIN POWER AT THE METER — DO NOT ATTEMPT TO INSTALL CURRENT TRANSFORMERS OVER HOT LINES.

8. If main power is distributed to more than one load center from the meter housing use additional current transformers. It is absolutely essential that the total power be measured in order for the system to operate properly. Connect leads from the transformers in parallel so that phase A of branch I is additive to the current of phase A in branch II. To be parallel, the CT's must be installed on the same phase, in the same direction and match the color of the leads from each transformer. Mismatched phases will result in an error in controlling the demand to the desired set point.

9. With main power OFF connect one leg of each controlled load in series to the relay contact as shown in Figures 1 through 5.

For ESB model, skip to #13.

10. Locate the control panel in the kitchen, hallway, entry or any other place agreeable to the owner. Mount it approximately 60 inches above the floor.
11. Run cable(s) from the relay/logic unit to the control panel.
12. Connect the cable as shown in Figure 6.
13. Connect 115V AC power to R/L unit supply transformer using a separate 15 ampere breaker in the load center. See Fig. 1.
14. Switch main power ON. With all relays normally closed the status lights on the control panel will be ON.

SYSTEM TEST

Perform a "Stove Test" to verify that the loads are shedding and restoring in proper sequence and that the alarm signals when the demand exceeds the set point.

1. Set demand as low as possible: 3-4 Kw.
2. Turn all burners and oven ON (make sure oven is empty)
3. Light 1 Turns off in approximately 45 sec.-5 min.
Light 2 Turns off in approximately 15 sec. later
Light 3 Turns off in approximately 2 min. later
Light 4 Turns off in approximately 15 sec. later
Alarm turns ON in approximately 1 sec.
4. Turn stove OFF — alarm stops.
5. Status lights will turn on in the reverse sequence as load is reduced below set point. This may take as long as 5-10 min.
6. Return demand setpoint to appropriate setting.

NOTE: Only the uncontrolled loads such as the stove can cause the alarm to sound.

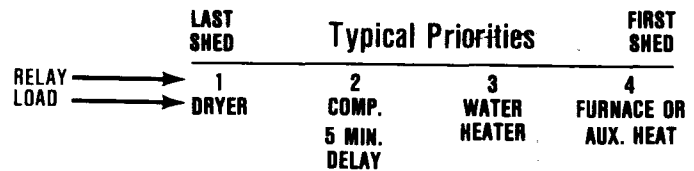
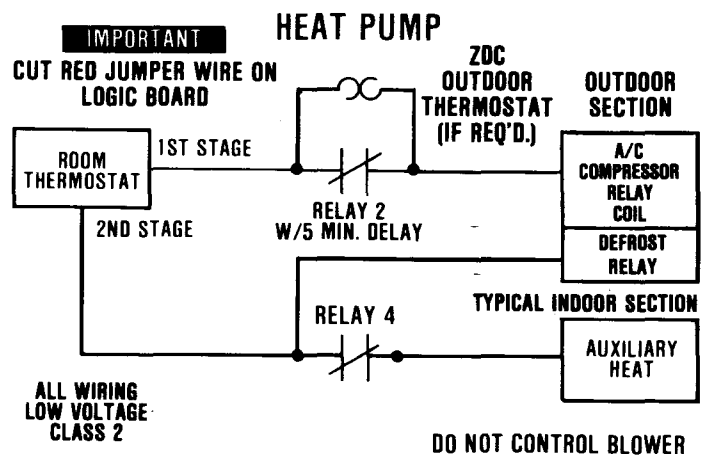


FIG. 2



BASEBOARD HEATING

IMPORTANT

CUT YELLOW JUMPER WIRE ON LOGIC BOARD

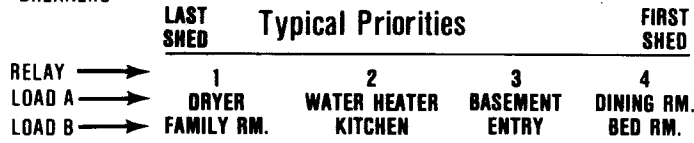
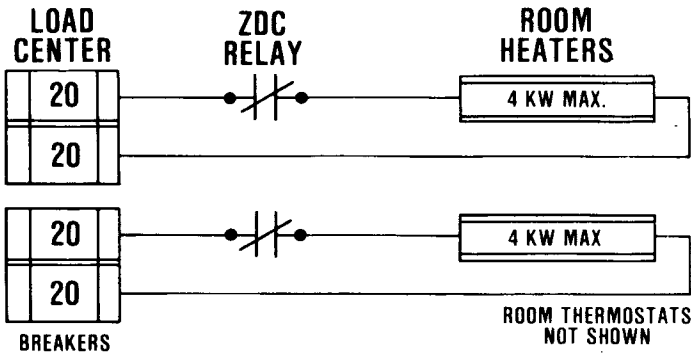


FIG. 3

WATER HEATER

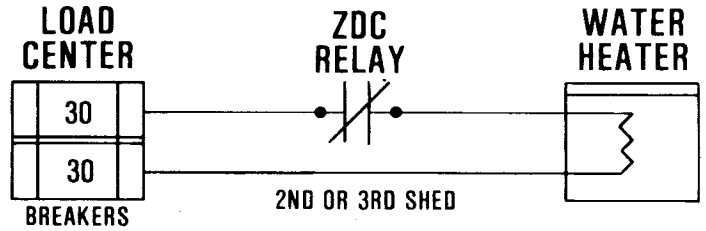


FIG. 4

AIR CONDITIONER

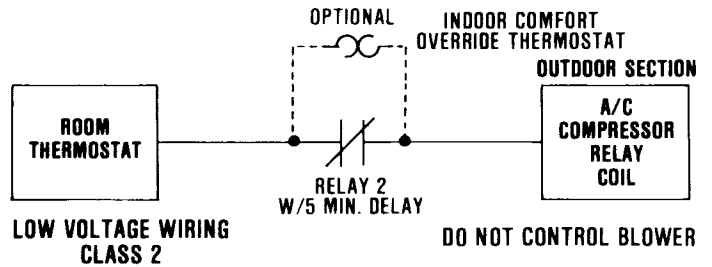
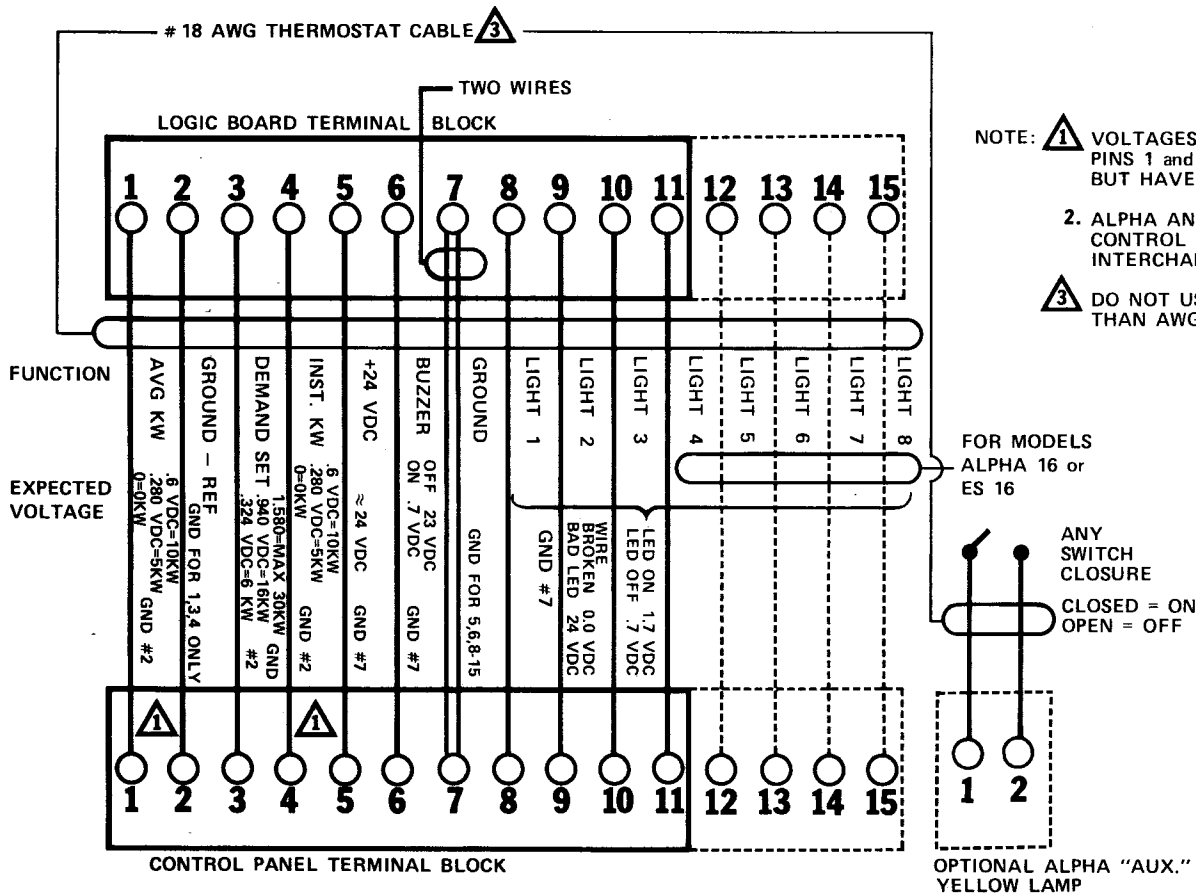


FIG. 5

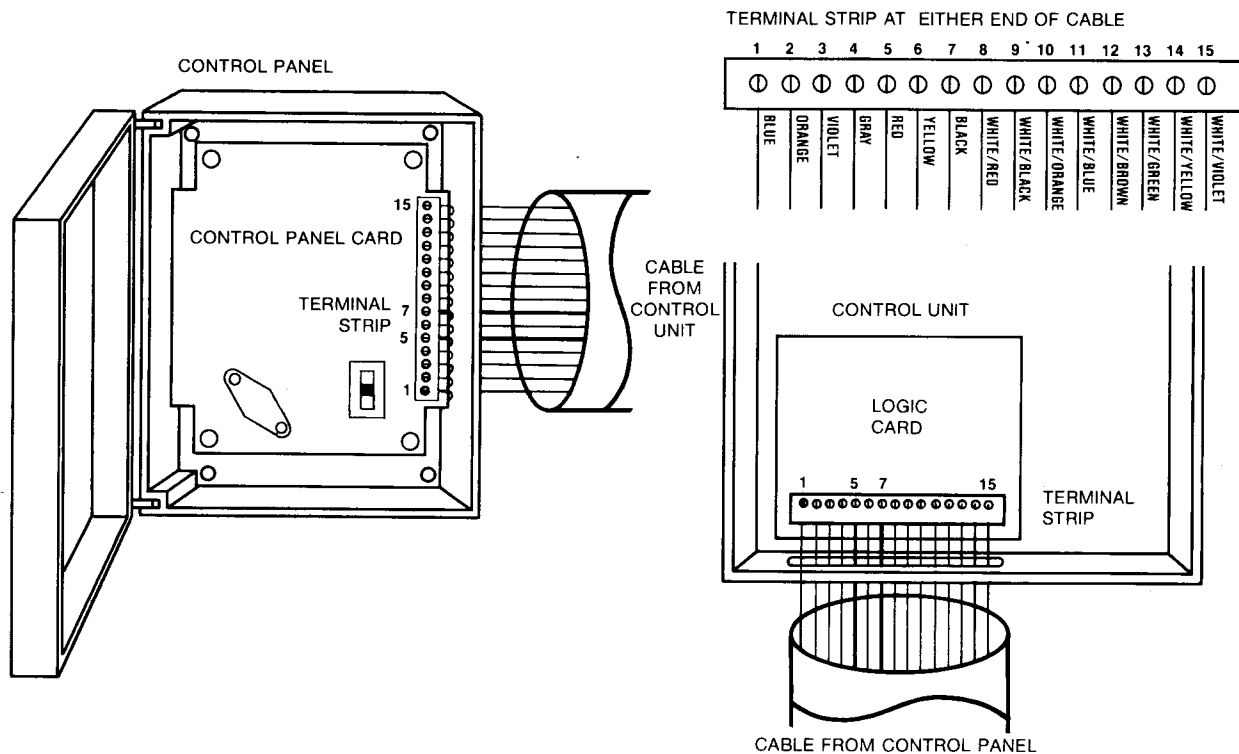
ALL VOLTAGES AND WIRING NEC CLASS 2



CONTROL PANEL WIRING FOR ES AND ALPHA MODELS

FIG. 6

Control Panel



Hook-up

1. Use template to locate mounting and cable hole, and feed cable through wall. (See back of this sheet.)
2. Remove door of control panel by holding open at 90° to case and gently snap to left with finger at top and bottom of door, being careful not to break off ears. (See above.)
3. Mount base to wall using anchors provided.
4. Attach wires at control panel terminal strip and gently fold wiring under card..
5. Fasten intermediate cover with Phillips screws provided.
6. Write connected loads on label inside door.
7. Reinstall door.
8. Attach wires of other end of cable to controller logic card.

Caution

Wiring from control panel to control unit logic card is point to point: 1 to 1, 2 to 2, 3 to 3, etc. Up to 11 or 15 connections depending on model. Mis-wiring can cause serious damage to either, or both, the control unit logic card and control panel card, and will void the warranty.

Always have cable exit at bottom of control unit enclosure so intermingling with power wiring is avoided. Use cable clamp at entry of box, but do not overtighten.

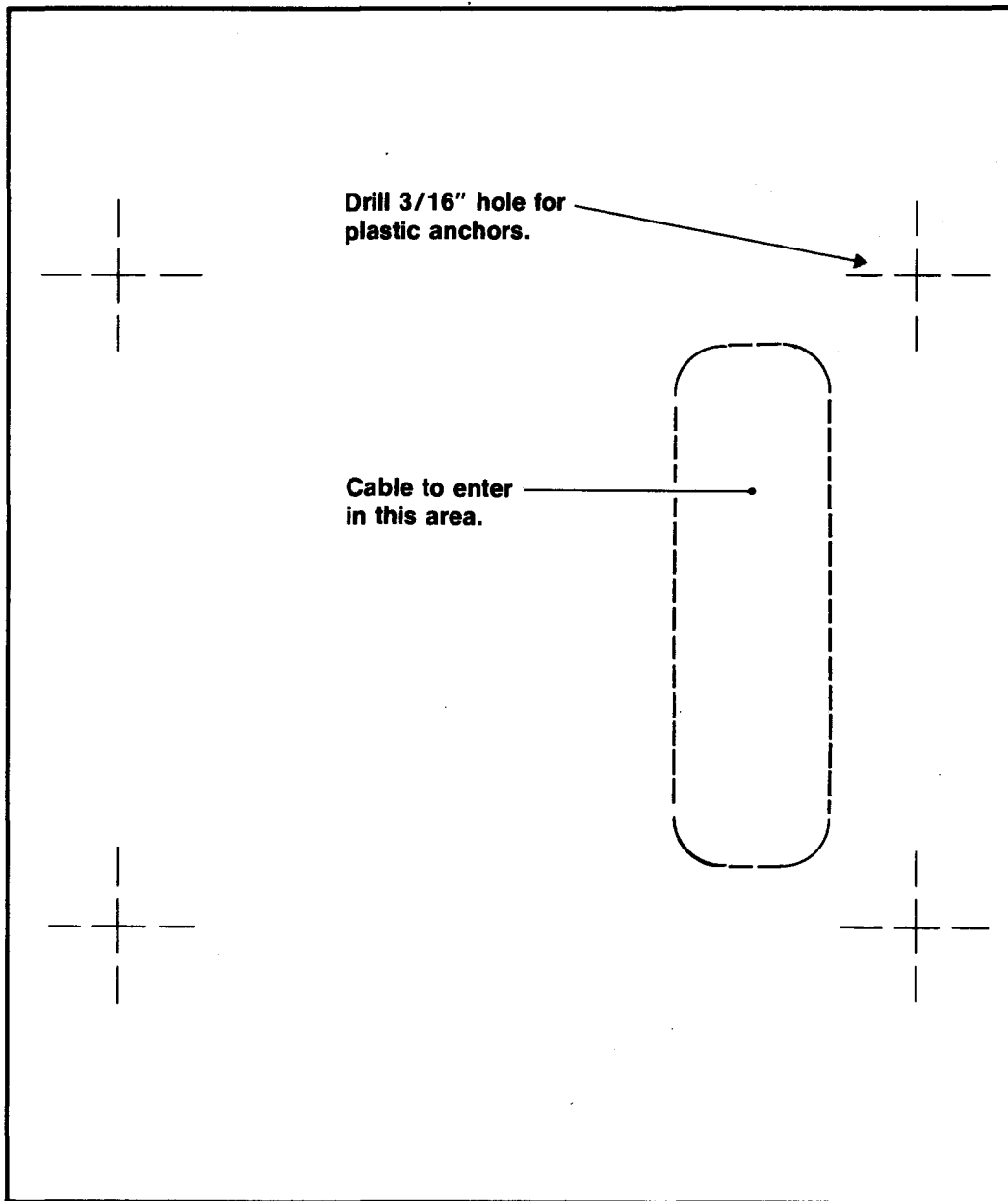
Run cable as far from power wiring as practical.

Specifying Control Panel to Controller Cable

Cable	Cable Length
P/N 4220	Bulk Cable on 250' spool
P/N 4235	Precut 35'
P/N 4260	Precut 60'
P/N 4299	Precut 100'

Template for Control Panel

Mount in a location where overlimit alarm can be heard in the kitchen area.



50"-56" from floor.

